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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/626,142  
Filing Date: July 24, 2003  
Appellant(s): BURGIO ET AL.

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Loren D. Albin  
For Appellant

**CORRECTED EXAMINER'S ANSWER**

This is in response to the appeal brief filed 11/07/2008 appealing from the Office action mailed 09/02/2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

### **NEW GROUND(S) OF REJECTION**

The Examiner has included the [www.geo.utexas](http://www.geo.utexas.edu/courses/387E/PDF/carbonyl.pdf) reference as evidence that the compounds of the prior art do meet the limitations of the instant claims of "containing a polar or polarizable group".

The Examiner has included claim 49 to the 103(a) obviousness rejection of Mitra et al. in view of Majeti et al. further in view of Aasen et al.

The Examiner has included claims 69-80 in the 103(a) obviousness rejection of Rozzi et al. in view of Majeti et al. to reflect the original claim listing of the 103(a) rejection from the Non-final Office action dated 10/09/2007, but inadvertently omitted from subsequent actions.

### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

### **(8) Evidence Relied Upon**

5,888,491	Mitra et al.	3-1999
5,607,663	Rozzi et al.	3-1997
7,025,950	Majeti et al.	4-2006
4,871,786	Aasen et al.	10-1989

[www.geo.utexas.edu/courses/387E/PDF/carbonyl](http://www.geo.utexas.edu/courses/387E/PDF/carbonyl.pdf) pdf, pp. 1-7 (accessed 12/18/2008)

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

1) Claims 1-3, 5, 8-11, 14-17, 19, 22, 30-32, 34, 36-43, 45-48, 50-64 and 69-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra et al. (USP 5,888,491) in view of Majeti et al. (USP 7,025,950).

Mitra et al. disclose oral compositions (see column 15, lines 38-52) containing the instantly claimed polymers. When applied as dentifrices, the polymers do not contain pendant ethylenically unsaturated groups e.g., pendant "reactive groups", as is clear from the use of the provisional term "may" at column 9, line 59. See also column 16, lines 17. See also working example 1 at column 18, wherein the polymer used plainly does not contain any pendant ethylenically unsaturated groups; compare and contrast this with working example 2, where the inventors took additional steps to provide such groups to a UV curable coating (not a dentifrice). Unit A, present in polymers is comprised of specific groups, include fluoride-releasing groups such as 1-N,N,N-triethylammonium ethyl (meth)acrylate (column 4, lines 41-58) and (meth)acrylic esters of fluoroalkylsulfonamideo alcohols, where the (hydrophobic) fluorine moiety has up to 21 perfluoro-carbons, (see the table of structural formulae provided at column 5 between lines 23-53). Unit B is a modulating group, which is comprised of methacrylic esters of 1-12 carbon alcohols (column 2, lines 11 and column 5, lines 16-18).

As clear from column 19, lines 56-64 of Mitra, the prior art compositions form hydrophobic coatings on tooth enamel. The compositions are further taught to be useful for the administration of other conventional dentifrice components, e.g., therapeutic agents "such as" fluoride salts (column 15, lines 54-63). Mitra differ from the instant claims, however, insofar as whitening agents such as peroxides are not specifically disclosed.

Majeti et al. teach that hydrophobic polymers which form coatings on tooth enamel are particularly desirable for the delivery of oral care actives, including fluorides and whitening agents, because they facilitate deposition and retention of same. See column 8, lines 42-56. Useful whitening agents are not limited to hydrogen peroxide, and include other peroxides such as carbamide peroxide, as well as peroxyacids, chlorites, etc. (column 9, lines 12-25). From about 0.1% to about 20.0% of teeth whitening agent provide overall cleaning, whitening, stain removal and prevention of stain build-up on teeth (column 8, lines 58-64). Water may be employed in preparation of the composition (column 17, lines 20-27). The method of use comprises contacting a subject's dental enamel surfaces and oral mucosa with the oral compositions; and may be by brushing, rinsing, or contacting the dentifrice by topical oral gel, mouthspray, or other forms such as films or strips (See the passage bridging column 18, line 66 to column 19, line 10).

It would have been obvious to have used a peroxide whitening agent as the oral care active of Mitra, since the same are known oral care actives as taught by Majeti.

2) Claims 6, 7, 12, 13, 20, 21, 23-25, 27-29, 49 and 65-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitra et al. (UDP 5,888,491) in view of Majeti et al. (USP 7,025,950), the combination being taken further in view of Aasen et al. (USP 4,861,786).

Mitra et al. and Majeti et al. and the motivation for combining their teachings are discussed supra. The compositions suggested by their combined teachings differ from those of the instant claims insofar as they do not include a fluoride releasing group comprising tetrafluoroborate ions.

Aasen et al. teach that fluoride-releasing monomers containing tetrafluoroborate ions are preferred because of their compatibility with virtually all other comonomers. See the passage bridging column 3, lines 62 to column 4, line 8. Accordingly, it would have been obvious to have used such monomers in the forming the compositions suggested by the combined teachings of Mitra et al. and Majeti et al. in order to take advantage of this art-recognized property.

3) Claims 30-32, 34, 35, 37-43, 45, 50-52 and 60-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rozzi et al. (USP 5,607,663) in view of Majeti et al. (USP7,025,950).

Rozzi et al. is substantially similar to that applied in subsection "1)" supra, except that it teaches the incorporation of hydrophobic hydrocarbon groups such as octadecylacrylate, which the '491 patent lacked (column 5, lines 40-42). Again, note that the use of the provisional term "may" at column 5, line 49; "can't" at column 11, line

43; and "when" at column 12, lines 36 and 46. Again, the prior art discloses dentifrices and teaches the inclusion of oral care actives therein (see the passage bridging column 11, line 60 to column 12, line 19), but differs from the instant claims insofar as peroxide whitening agents are not specifically closed.

Majeti et al. is likewise discussed supra. As before, it would have been obvious to have used a peroxide whitening agent as the oral care active of Rozzi et al. since same are known oral care actives as taught by Majeti et al.

#### **(10) Response to Argument**

(1) In response to the Final Office Action mailed 06/06/2008 and the Advisory Action dated 09/02/2008, Appellants argue that the Examiner has improperly relied on Mitra et al. for disclosing a polymer that includes a repeating unit including a polar or polarizable group and a repeating unit including a fluoride releasing group, wherein the repeating unit including the polar or polarizable group is different than the repeating unit including the fluoride releasing group. Appellants argue that they have not been able to locate any support for the Examiner's allegation that unit B monomers can be branched or cyclic alcohols. Further, Appellants argue that the branched or cyclic alcohols cited by the Examiner are precursors of the Unit B monomers, and are not monomers themselves, i.e. that once the hydroxy group of the alcohol reacts to form the ester monomers it is no longer present in the carboxylic acid; and that the Examiner admits to

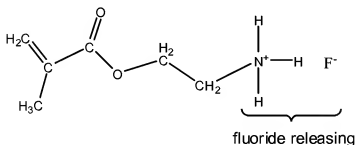


this assertion. Appellants argue that Examiner has not provided support that Mitra et al. discloses a repeating unit including a polar group.

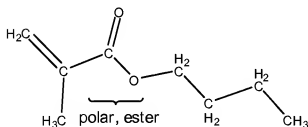
Mitra et al. disclose a Unit A monomer, which are derived from monomers with a fluoride counter-ion, i.e. fluoride releasing groups, such as 2-N,N,N-methylammonium ethyl methacrylate, depicted as (A) below, See, page 3, Non-Final office action.

Mitra et al. discloses B unit monomers that are derived from intermediate methacrylic acid esters, depicted as (B) below, of 1-12 carbon, straight or cyclic alcohols, i.e. the B unit monomer is an ester made from methacrylic acid and a 1-12 carbon straight or cyclic alcohol. Although the Examiner agrees that the straight or cyclic alcohols cited by Mitra et al. are used to make B unit monomers, and that once these B unit monomers, i.e. esters, are formed they no longer possess the hydroxyl functionality, -OH, the Examiner does not concede that the resulting B unit monomers do not exhibit a polar nature. The product, which is a methacrylic acid ester, contains a polar or polarizable group, i.e. the ester group. See [utexas.edu](http://utexas.edu), page 7, Esters, which teaches that esters are polar compounds. And therefore, the unit B monomer used to produce the polymer of the invention does contain a polar or polarizable group and is different from that of the fluoride-releasing group, compare A and B below. Further, Appellants agree with the Examiner's assertion that unit B monomers could be made from acrylates, and other polymerizable starting monomers instead of methacrylates, see page 10, 2<sup>nd</sup> paragraph, Appeal brief. Acrylates or acrylic acid esters also contain a polar or polarizable, ester group.

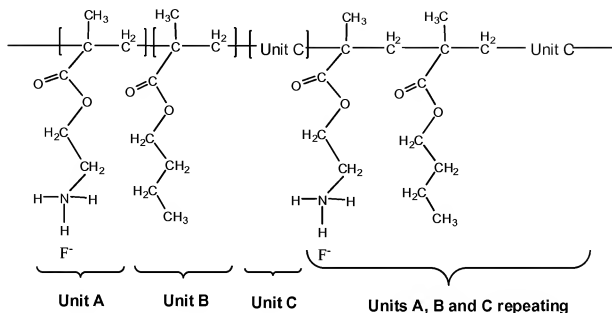
A. 2-N,N,N-triammonium ethyl methacrylate



B. a methacrylic acid ester of a 4 carbon alcohol, but the alcohol can be from 1-12 carbons instead of 4



If the two monomers were used to produce the polymer of Mitra et al., it would result in the polymer, a portion which is depicted below. Units A and B are different repeating units. While Unit A has a fluoride releasing group, Unit B contains a polar or polarizable ester group.



Mitra et al. teach that the polymers are useful for the administration of dentifrice components, i.e. oral care actives, See Non-final office action page 4.

Majeti et al. teach hydrophobic polymers desirable for delivery of oral actives, including whitening agents, such as hydrogen peroxide. And therefore, provides motivation for combining the two references, i.e. the use of hydrogen peroxide as an oral care, i.e. whitening, active.

(2) In response to the 103(a) rejection over Mitra et al. in view of Majeti et al., the combination taken further in view of Aasen et al. from the Final Office Action mailed 06/06/2008 and the Advisory Action dated 09/02/2008, Appellants' argument concerning Mitra et al. and Majeti et al. is the same as discussed above. Appellants take the same

position on the applicability of Mitra et al. The Examiner's argument concerning Mitra et al. and Majeti et al. provided above is applicable to this rejection as well.

Further, Aasen et al. teach that the fluoride releasing monomers containing tetrafluoroborate ions are preferred due to their compatibility with virtually all other comonomers, See page 5, Non-final office action, mailed 10/09/2008. Therefore, Aasen et al. provides adequate motivation for combining it with Mitra et al. and Majeti et al.

(3) In response to the 103(a) rejection over Rozzi et al. in view of Majeti et al., from the Final Office Action mailed 06/06/2008 and the Advisory Action dated 09/02/2008, Appellants argue that the Examiner has improperly relied on Rozzi et al. for disclosing a polymer that includes a repeating unit including a polar or polarizable group and a repeating unit including a fluoride releasing group, wherein the repeating unit including the polar or polarizable group is different than the repeating unit including the fluoride releasing group. Appellants argue that they have not been able to locate any support for the Examiner's allegation that unit B monomers can be branched or cyclic alcohols. Further, Appellants argue that the branched or cyclic alcohols cited by the Examiner are precursors of the Unit B monomers, and are not monomers themselves, i.e. that once the hydroxy group of the alcohol reacts to form the ester monomers it is no longer present in the carboxylic acid; and that the Examiner admits to this assertion. Appellants argue that Examiner has not provided support that Rozzi et al. discloses a repeating unit including a polar group.

Examiner disagrees, since the disclosure of Rozzi et al. and Mitra et al. is substantially the same concerning the monomers for Unit A and Unit B, Appellant's argument concerning the applicability of Rozzi et al. is the same as that for the applicability of Mitra et al., therefore, the same response to the arguments concerning the A and B monomers is applicable. The Examiner's discussion of Majeti et al. is still applicable.

Rozzi et al. also teaches the same monomers for Unit A and for Unit B and further, the incorporation of hydrophobic hydrocarbon groups such as octadecylacrylate as the Unit C monomer of the polymer; and that the polymers can be used with oral care actives. see Non-Final office action, page 5.

Majeti et al. teach that hydrogen peroxide is an oral care agent and therefore provides the motivation for it combining with Rozzi et al.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

This examiner's answer contains a new ground of rejection set forth in section **(9)** above. Accordingly, appellant must within **TWO MONTHS** from the date of this answer exercise one of the following two options to avoid *sua sponte* **dismissal of the appeal** as to the claims subject to the new ground of rejection:

(1) **Reopen prosecution.** Request that prosecution be reopened before the primary examiner by filing a reply under 37 CFR 1.111 with or without amendment, affidavit or other evidence. Any amendment, affidavit or other evidence must be relevant to the new grounds of rejection. A request that complies with 37 CFR 41.39(b)(1) will be entered and considered. Any request that prosecution be reopened will be treated as a request to withdraw the appeal.

(2) **Maintain appeal.** Request that the appeal be maintained by filing a reply brief as set forth in 37 CFR 41.41. Such a reply brief must address each new ground of rejection as set forth in 37 CFR 41.37(c)(1)(vii) and should be in compliance with the other requirements of 37 CFR 41.37(c). If a reply brief filed pursuant to 37 CFR 41.39(b)(2) is accompanied by any amendment, affidavit or other evidence, it shall be treated as a request that prosecution be reopened before the primary examiner under 37 CFR 41.39(b)(1).

Extensions of time under 37 CFR 1.136(a) are not applicable to the TWO MONTH time period set forth above. See 37 CFR 1.136(b) for extensions of time to reply for patent applications and 37 CFR 1.550(c) for extensions of time to reply for ex parte reexamination proceedings.

Respectfully submitted,

/Darryl C Sutton/  
Examiner, Art Unit 1612

**A Technology Center Director or designee must personally approve the new ground(s) of rejection set forth in section (9) above by signing below:**

/Michael G. Wityshyn/

Acting Director, Technology Center 1600

Conferees:

/Frederick Krass/

Supervisor, Art Unit 1612

/Kathleen Bragdon/

Quality Assurance Specialist, Technology Center 1600